

# USING THE DELL MANAGEMENT CONSOLE AND ADDITIONAL SYMANTEC SOLUTIONS TO MANAGE SERVERS IN DELL-ONLY AND HETEROGENEOUS ENVIRONMENTS

A Principled Technologies report commissioned by Dell and Symantec



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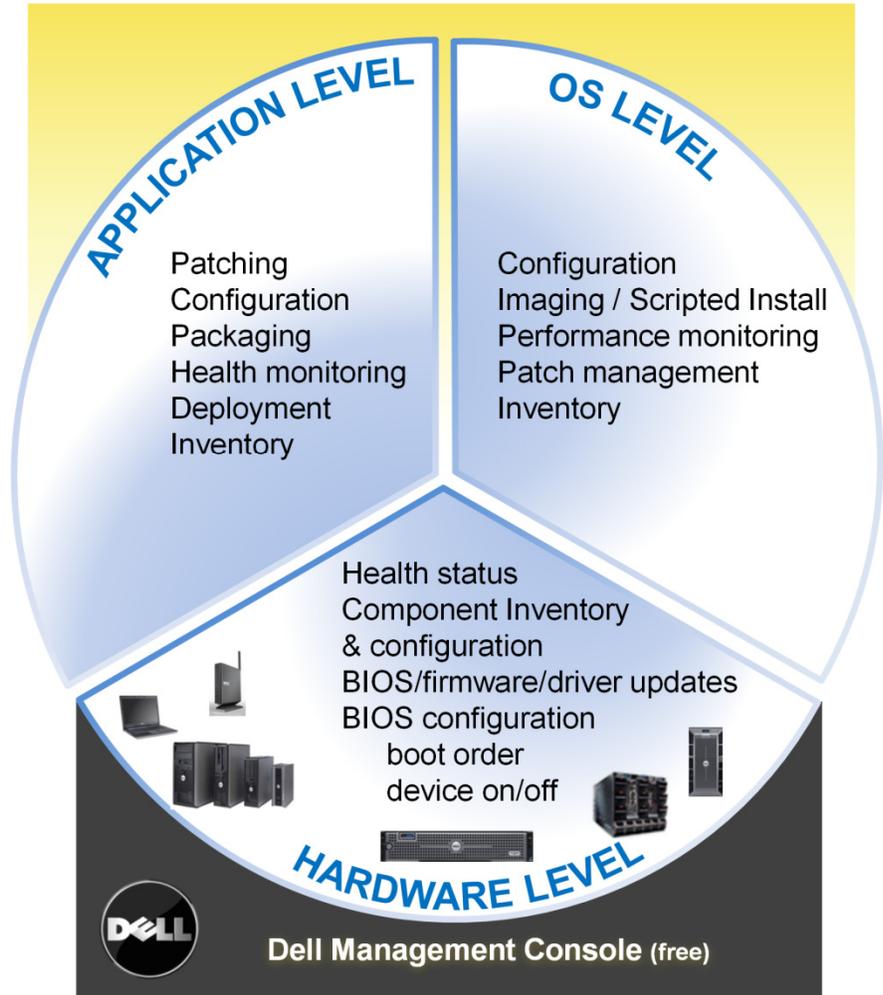
## Executive summary

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The Dell™ Management Console (DMC), powered by Altiris™ from Symantec™ (Symantec), provides a central console offering systems management features from hardware management to advanced enterprise functionality. The DMC, which Dell ships free of charge with every server and which is available free via download, provides managers a unified interface through which to implement the deployment, inventory, monitoring, and updating of their IT infrastructure, including servers, storage, desktops, notebooks, network devices, printers, and devices. The DMC provides advanced support for Dell hardware, particularly PowerEdge servers. However, like HP Systems Insight Manager and IBM Director, it also provides standard capabilities for managing equipment from other vendors. Moreover, the DMC's extensible framework provides a foundation for more advanced management functionality.

System managers can extend the value of the Dell Management Console with additional Symantec products that integrate easily with its intuitive interface and can scale as needs change. In this guide, we consider the Altiris Server Management Suite and the DMC. The Altiris Server Management Suite comprises several Symantec components, including the Software Management Solution, Inventory Solution® for Servers, Patch Management Solution™ for Servers, Monitor Solution for Servers™, and Real-Time System Manager Solution™. It also includes licenses for running Symantec's Deployment Solution™ for Servers. Figure 1 shows the built-in features of the DMC and how the Altiris® Server Management Suite™ compliments these capabilities.

Altiris Server Management Suite (addl cost)  symantec™



**Figure 1. The Dell DMC and the Altiris Server Management Suite complement each other.**

The Dell Management Console, and the seamless integration with Symantec’s add-on products, unites systems management across IT environments through a single interface, eliminating or reducing manual systems management processes and allowing businesses to save time, reduce expenses, and redirect resources to strategic projects.

Through its unified, expandable architecture, the Dell Management Console allows you to choose the level of capability that best suits your organization.

In this guide, Principled Technologies, Inc. (PT) presents the results from our hands-on DMC testing and research. Furthermore, we draw on real-world experiences to document best practices and assist systems administrators in the six basic management functions of discovery, agent push, bare-metal deployment, inventory, patch update, and monitoring. We will consider each function in the circumstances:

- Using the DMC with Dell PowerEdge servers
- Using the DMC in heterogeneous environments, including those with HP and IBM servers
- Using Altiris Server Management Suite from Symantec in conjunction with the DMC to fully manage Dell, HP, and IBM servers

## Features of the Dell DMC 1.0 and Altiris Server Management Suite version 7

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The Dell Management Console, powered by Symantec, boasts a range of features to streamline systems management. The add-on Symantec products offer additional features for the DMC and extend the capabilities of the DMC in heterogeneous environments and upward into the OS and application levels.

The extensible architecture of the Dell Management Console makes for easy integration with additional products from Symantec. This guide focuses on the Altiris Server Management Suite, showing how it extends the Dell Management Console into a unified management solution for heterogeneous server environments.

The Dell Management Console and Altiris Server Management Suite include far too many features to discuss them all in this guide. The following list introduces the more significant elements that relate to the six basic management operations we discuss in this guide.



Although this guide focuses on the DMC and the Altiris Server Management Suite, Symantec has other products you can use to extend your management capabilities beyond what we show here. These include products such as Altiris Client Management Suite 7.0, Symantec Endpoint Protection, and Symantec Backup Exec System

Recovery. These products add capabilities in areas such as audit and compliancy, backup and recovery, and endpoint protection.

## Discovery

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Discovery is the process of finding the various devices residing on your network. The Dell Management Console makes this process simple.

### The Dell Management Console on Dell Hardware

For Windows systems, the DMC allows you to import the system information from Active Directory or to discover systems by browsing a domain. The DMC has a built-in facility for entering and managing the credentials you will need for these forms of discovery.

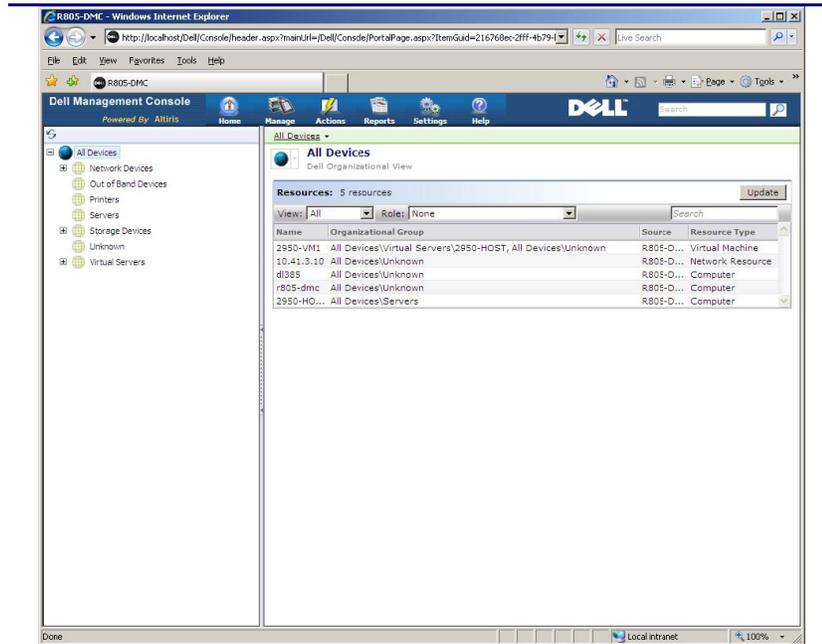
The DMC also allows you to discover network devices directly by using its Network discovery option. This option lets you specify the IP addresses you want to scan. You may specify IP addresses by giving specific addresses, specifying a subnet, giving a range of addresses, or using hostnames. You can also specify addresses to exclude.



The DMC can discover network devices using a number of protocols, including ICMP, SNMP, and WMI, in addition to HTTP.

### The Dell Management Console on non-Dell Hardware

Network discovery happens at the IP level: The DMC will discover any device with an IP address in the scanned range, regardless of whether it is Dell hardware. As the previous section notes, the DMC can also import information from Active Directory or browse a domain. While the DMC will discover non-Dell devices, in-depth inventory and most management tasks require Dell hardware. Figure 2 shows the results of scanning a range of IP addresses.



**Figure 2. Viewing all discovered devices in the Discovery Wizard.**



The DMC will discover VMs as well as physical devices. The DMC treats VMs as a special class of non-Dell device. The DMC lists each server with VMs under the Virtual Servers node of the All Devices tree. Clicking each host server will list its VMs.

### The Dell Management Console with the Altiris Server Management suite

Server Management Suite adds the ability to move beyond DMC's tie to Dell hardware and classify all discovered assets (Dell or not). It also provides graphical, layer 2 topology maps that display device status parent/child relationships, etc.

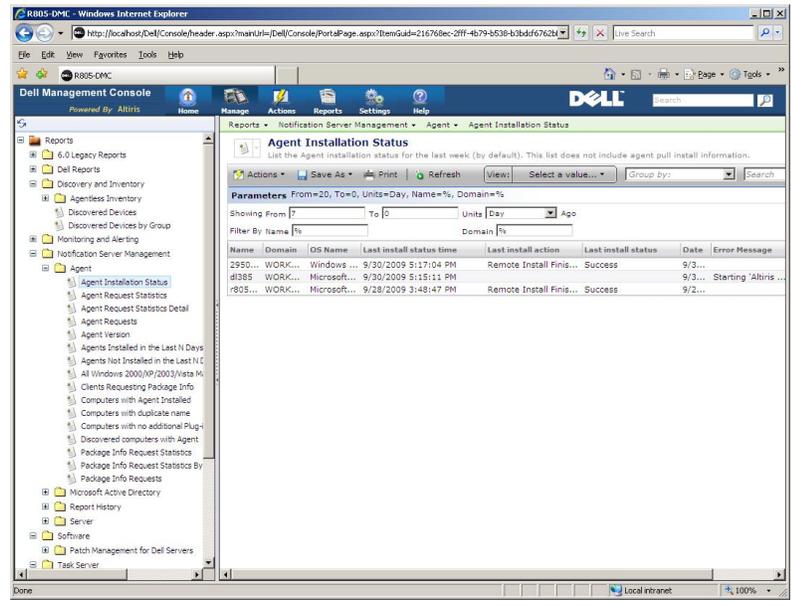
### Agent push

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#### The Dell Management Console on Dell Hardware

The free DMC comes with the ability to deploy the Altiris agent and to use the Altiris agent to deploy the Dell OpenManage Server Administrator (OMSA) to Dell PowerEdge servers running Microsoft Windows or Linux.. A wizard allows you to select the version of OMSA you wish to install, select the Dell PowerEdge servers to deploy to, and schedule when the push should occur. Figure 3 shows the status of the agent push from the DMC.

## Using the Dell Management Console and additional Symantec solutions to manage servers in Dell-only and heterogeneous environments



**Figure 3. Viewing the installation status.**

### The Dell Management Console on non-Dell Hardware

The Dell Management Console gives you the ability to push the Altiris Agent to non-Dell hardware and to VMs. If you have a heterogeneous environment with HP and IBM servers, you can manage them from the same console as you manage your Dell PowerEdge servers.

The DMC gives you the ability to push the Altiris Agent to Windows, UNIX, and Linux servers.

DMC relies on the Altiris agent primarily for deploying OMSA and pushing out hardware/firmware/BIOS updates. Most other functions use OMSA and remote calls to protocols such as WMI, SNMP, and IPMI.

### The Dell Management Console with the Altiris Server Management suite

In addition to all the capabilities in the DMC, the Altiris Server Management suite gives you more administrative control, including features such as a rule-based deployment facility, the ability to set more options on the Altiris agent, and the ability to set a schedule for automatically updating the agents.

More significantly, the agents we discuss later in this guide for inventory, patching, and monitoring non-Dell hardware require Altiris Server Manager Suite.

## Bare-metal deployment

DMC does not provide bare metal server deployment. That functionality is available exclusively through Altiris Server Management Suite.

### The Dell Management Console with the Altiris Server Management suite

Bare-metal deployment requires the Altiris Deployment Solution – part of Server Management Suite. Some Dell PowerEdge servers ship with an OEM copy of Altiris Deployment Solution for Dell Servers. For other servers, system administrators can download the Deployment Solution software from [https://www4.symantec.com/Vrt/offer?a\\_id=55149](https://www4.symantec.com/Vrt/offer?a_id=55149)



Symantec also offers the Deployment Solution as an independent add-on for Dell servers. That product is outside the scope of this guide, but you can find more information at

[http://www.symantec.com/business/theme.jsp?them\\_eid=deployment\\_solution\\_dell](http://www.symantec.com/business/theme.jsp?them_eid=deployment_solution_dell).

Deployment Solution can provide remote pre-boot BIOS, DRAC, RAID, and BMC configuration. It can also install a Windows or Linux OS via either imaging or a scripted OS install. You can deploy VMware and ESX remotely with the tool as well as management agents, backup agents, etc., and can combine any combination of these tasks into a single drag-and-drop job, making server deployment very simple and far less time consuming for IT administrators. The scripted OS install facility gives you the ability to execute remote and unattended installs and post-installation tasks such as updates and service packs installs. It uses answer files to let you control every aspect of the installation. In addition, Altiris Deployment Solution has wizards to help script the installation of operating systems including Windows Server 2008 and Linux.

Using the Dell Management Console and additional Symantec solutions to manage servers in Dell-only and heterogeneous environments

The Deployment Solution also allows you to deploy to multiple servers at once and you can create different install scripts for the same deployment share, allowing you to have different customized installations without needing separate copies of operating system files.

## Inventory

In this context, inventory refers to the process of gathering information about the devices on your network. This includes information about memory, processors, power supplies, embedded devices, and software and firmware versions.

### The Dell Management Console on Dell Hardware

Once you have deployed OMSA to your Dell PowerEdge servers, the inventory returns information about the hardware, firmware, and basic OS information. The DMC then provides many standard hardware inventory reports and lets users create custom reports. Figure 4 shows a screen of detailed inventory information from an inventoried Dell PowerEdge system.

The screenshot shows the Dell Management Console (DMC) interface for a Dell PowerEdge server. The main window displays the following information:

- Server Information:** Model: PowerEdge R710, Host name: R710, Service Tag: D1K7UK1, Asset Tag: ..., Location: ...
- Software Agent Information:** Agent Name: Server Administrator, Agent Description: Management software for Dell systems, Agent Manufacturer: Dell Inc., Agent Version: 6.0.3
- NIC Information:** IP Address, MAC Address, Description, TOE Capability, TOE Enabled. Includes details for WAN Miniport (PPPOE) and Broadcom BCM5708C NetXtreme II GigE (NIC) driver.
- Processor Information:** Processor Family, Processor Current Speed (MHz), Processor Core Count, Processor Brand Name, Processor Model Name, Processor Stepping Name. Shows Intel(R) Xeon(TM) processors at 2933 MHz.
- Memory Device Information:** Memory Device Bank Name, Memory Device AssetTag Name, Memory Device Name, Memory Device Form Factor, Memory Device Name, Memory Device Type, Memory Device Manufacturer Name, Memory Device Size (MB), Memory Device Serial Number, Memory Device Part Number. Lists multiple DIMM modules (DIMM\_A1 to DIMM\_B6) with 4GB capacity.

**Figure 4. Viewing detailed hardware information for the inventoried system.**

### The Dell Management Console on non-Dell Hardware

The free DMC allows you to gather the Altiris basic inventory on non-Dell servers. As we note above, the DMC treats VMs as a

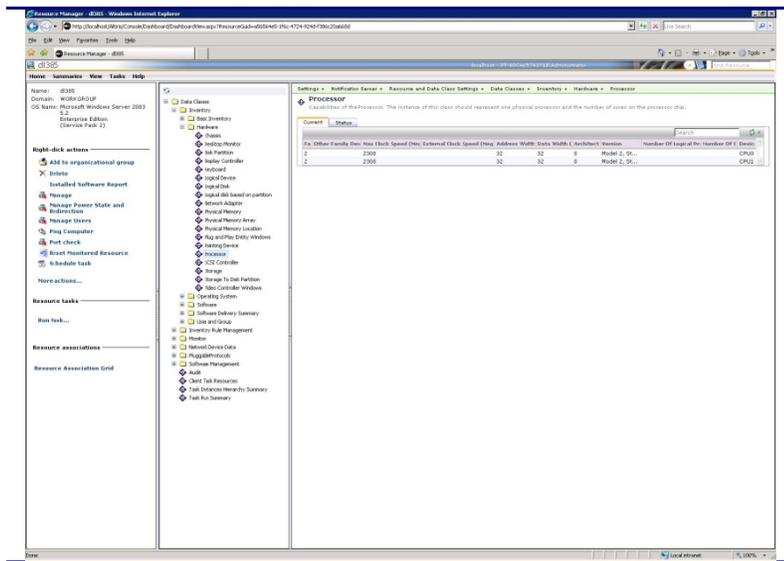
special class of non-Dell server, so you can also gather the Altiris basic inventory on them.



As we discuss in the section on monitoring below, The Dell Management Console allows you import MIBs to and format SNMP traps. However, the base DMC will not allow you extend its inventory capability to new devices by mapping MIBs to data classes.

### The Dell Management Console with the Altiris Server Management suite

For servers running Windows, Linux, or UNIX, the Altiris Server Management Suite lets you install the Altiris Inventory agent. This agent gathers more extensive information from the servers, covering not only hardware, but OS and application level information as well. Figure 5 shows a tree view of inventory information.



**Figure 5. Reviewing inventory information in the Altiris Server management Suite.**

For other types of network devices, the Altiris Server management Suite adds the ability to map SNMP traps and improve the quality of the inventory. There are many predefined tables for common devices. You may also create your own custom tables.

The Altiris Server management Suite allows you to create and edit policies for inventorying the servers, so that you can be sure that

your inventory information is always current. These policies are very powerful, allowing control right down to the level of individual files.

Like the free DMC, the Altiris Server Management Suite includes a number of predefined reports. It also extends the ability to create your own reports beyond the capabilities in the free DMC.

## Patch update

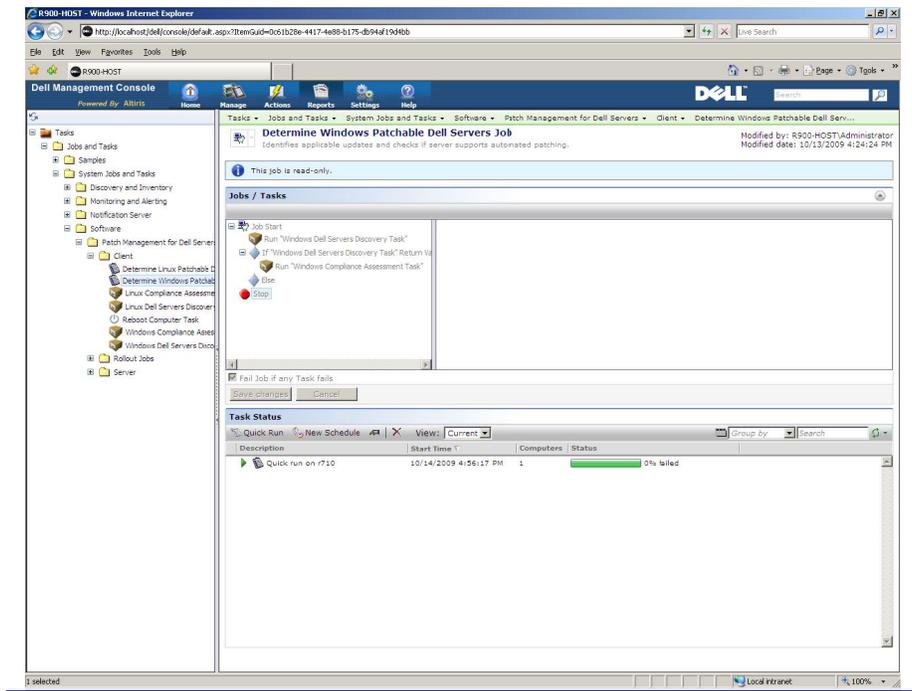
### The Dell Management Console on Dell Hardware

The DMC supports patch management for Dell PowerEdge servers by using Dell Update catalogs (DUPs). A DUP contains all the components you need to update a Dell PowerEdge server, such as firmware, BIOS, drivers, and other patches. DUPs may be bundled together as a Dell System Update Set. The DMC can download DUPs or obtain them from local storage.

The DMC can locate patchable Dell PowerEdge servers running Linux or Windows. It allows you to filter the DUPs by an array of criteria, such as OS type, severity, release date, server model, and many more.

The DMC allows you to configure rollout jobs, specifying which servers to update, which DUPs to use, when to update the system, and what options to use. The DMC can also patch an entire group of servers at once or just one server at a time. The DMC also supports bandwidth throttling, checkpoint recovery, multicasting, and other WAN-aware features that can be very helpful in server environments with complex topologies. Figure 6 shows patching a Dell PowerEdge server.

## Using the Dell Management Console and additional Symantec solutions to manage servers in Dell-only and heterogeneous environments



**Figure 6. Applying all necessary patch updates.**



DMC can patch servers using a bundle of DUPs Dell test DUPs as a set and encourages administrators to patch servers using the bundles. While the DMC can apply just a single update from within a bundle, such as a BIOS update or a single driver, Dell does not test or support those scenarios.

### The Dell Management Console on non-Dell Hardware

Because the DMC depends on the Dell Update Packages, you cannot push patches to a non-Dell server using the free DMC.

### The Dell Management Console with the Altiris Server Management suite

The Altiris Server Management Suite adds the ability to patch heterogeneous servers. For these non-Dell Windows-based servers, the Altiris Server Management Suite uses its Microsoft Patch Management Import facility to ensure that you have all the resources needed to patch your servers. It allows you to filter

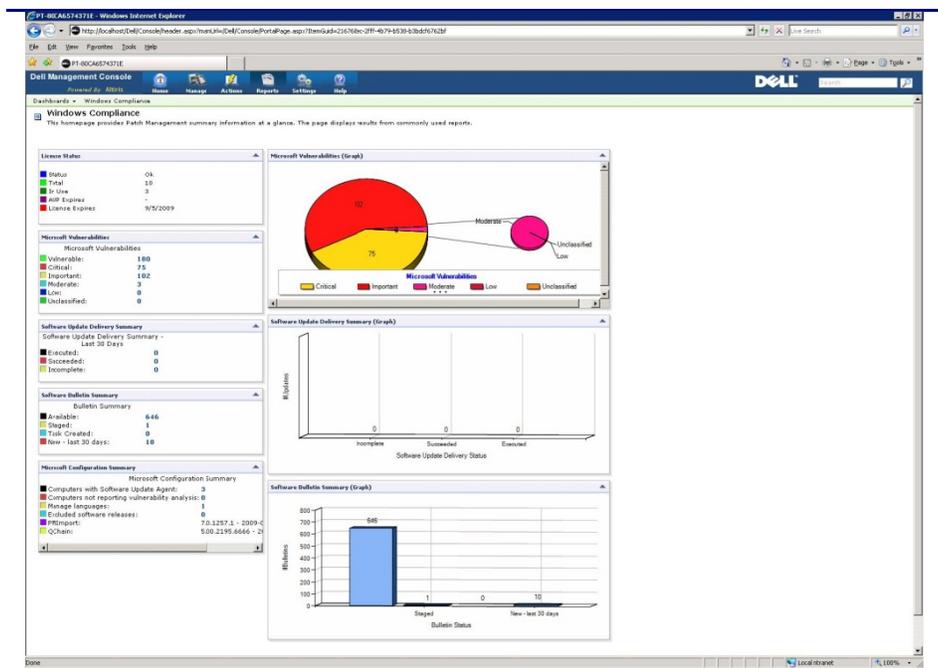
downloads and displays a status for the running job. QChain groups organize the updates for distributing to the servers.

For servers running Red Hat or SUSE Linux, the Altiris Server Management Suite Lets you enter system options specific to each version of Linux, including what credentials to use.



You can also use Symantec Software Delivery (SWD) to patch other operating systems, such as Solaris and ESX, and to apply IBM and HP update packages. However, these capabilities are outside the scope of this guide.

Figure 7 show a visual summary for the state of Windows compliance in a heterogeneous network before adding Altiris Server Management Suite.



**Figure 7. The Altiris Server Management Suite showing the state of Windows compliance before patching the servers.**

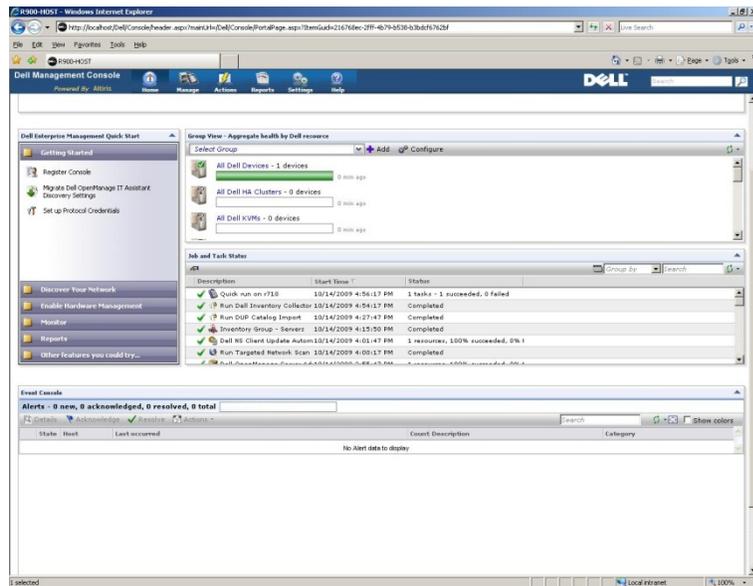
## Monitor

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### The Dell Management Console

The base DMC allows you to collect both health and performance data for all discovered Dell devices. It allows limited customization of existing policies.

Health monitoring in the free DMC is via the OMSA. You can check the health of any given Dell PowerEdge server, or use a group view, which summarizes the health of all devices on the network. Figure 8 shows the group view for a simple network.



**Figure 8. Viewing the health status of all currently managed Dell devices.**

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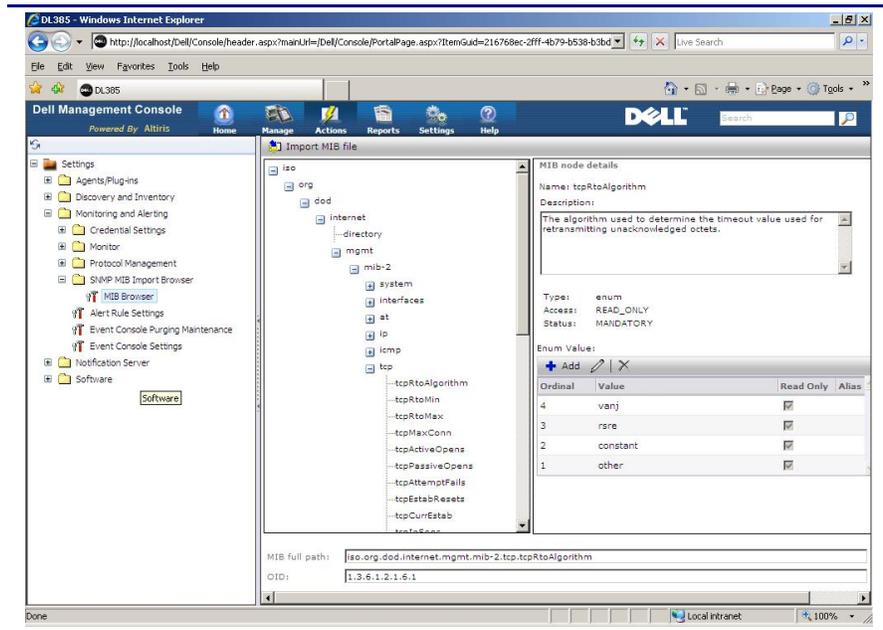
The free DMC provides access to the built-in Linux or Windows performance counters on Dell PowerEdge servers measuring CPU use, disk IO, memory use, and network use. Performance monitoring requires an agent on the servers you are monitoring.

### The Dell Management Console on non-Dell Hardware

Non-Dell devices can direct their SNMP traps to the DMC console and the free DMC will process them. The base DMC allows you to import the MIBs so that it can display the trap information in a meaningful way. By default, the category for an SNMP trap is

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“Unknown”. However, the DMC will let you assign the trap to a category and change its default severity. Figure 9 shows the MIB browser in the DMC.

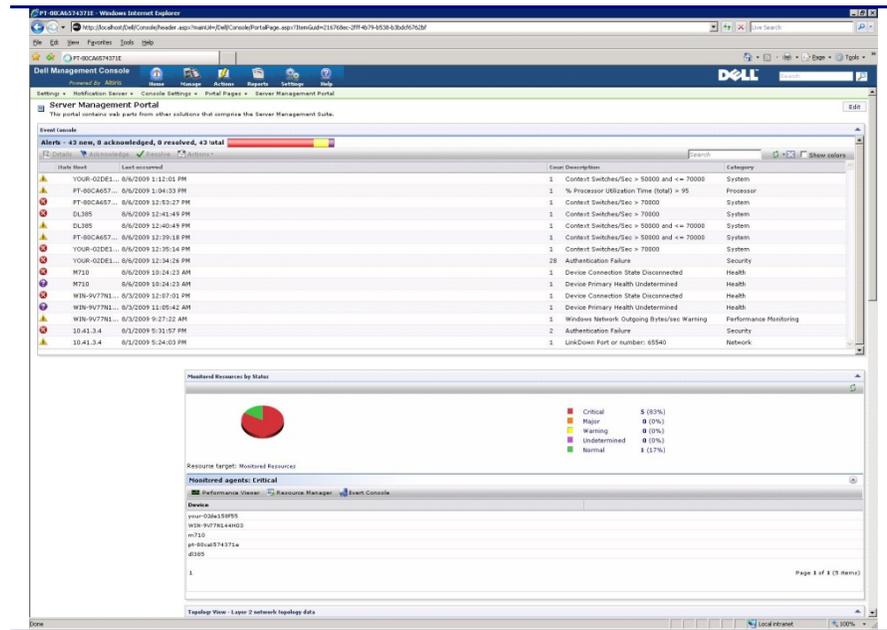


**Figure 9. Browsing an MIB in the Dell Management Console.**

### The Dell Management Console with the Altiris Server Management suite

The Altiris Server Management Suite expands the monitoring capabilities of the DMC by bringing the ability to monitor hardware from different vendors and allowing the system administrators to see deeper into the operation system and underlying applications. Symantec provides monitor packs for Exchange, SQL, HP, Windows, DNS, DHCP, and IIS, among others. It also adds the ability to customize existing monitor policies and to create new monitor policies. Figure 10 shows the alerts and critical systems from the Server Management Portal.

## Using the Dell Management Console and additional Symantec solutions to manage servers in Dell-only and heterogeneous environments



**Figure 10. Viewing the alerts and critical systems in the Server Management Portal.**

The Altiris Server Management Suite allows you to go beyond hardware monitoring and monitor at the OS or application level. Symantec provides monitor packs, which contain the metrics, rules and database items needed to monitor the application or operating system in question.



Performance monitoring can generate a large amount of data, becoming its own data management problem. The Altiris Server Management Suite gives you control over how long it keeps performance data in the database, and at what level of detail.

The Altiris Server Management Suite gives you the ability to create new metrics that suit your needs. It can even run COM, DLLs or command line utilities on the servers you are monitoring, and can parse the results.

While the base DMC lets you turn policies on and off, change polling intervals, and add predefined rules to a task, the Altiris Server Management Suite allows you to create and fully edit the policies. You can also have the policy automatically take action based on conditions that you define.

## Summing up

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This guide introduces you to the capabilities of the Dell Management Console and to the even greater capabilities that the add-on modules available from Symantec provide. Figure 11 below summarizes, for the six management operations we discuss in this guide, the management capabilities of the DMC for Dell PowerEdge servers as well as for other types of hardware. It also summarizes how the Altiris Server Management Suite extends those capabilities.

<b>Capability</b>	<b>Dell PowerEdge servers, DMC</b>	<b>Non-Dell servers, DMC</b>	<b>All servers, DMC with Altiris Server Management Suit</b>
<b>Discovery</b>	Basic discovery	Basic discovery	Enhanced classification and mapping capabilities
<b>Agent push</b>	Deploys OMSA via the Altiris agent	Altiris Agent	Altiris Agent
<b>Bare-metal deployment</b>	N/A	N/A	Comprehensive deployment of the full server stack including hardware, OS and application install and config
<b>Inventory</b>	Hardware & basic OS information	Altiris basic inventory	Comprehensive, multi-vendor hardware, operating system and application inventory; can extend and customize inventory scans, etc.
<b>Patch Update</b>	BIOS, firmware, driver updates	N/A	Multi-vendor patching of Windows and Linux with options for hardware level patching
<b>Monitor</b>	Hardware alerting & performance monitoring	Import MIBs for multi-vendor alerting	Comprehensive heterogeneous hardware, OS and application monitoring

**Figure 11. Comparison of management features for Dell and non-Dell servers, with and without the Altiris Server Management Pack.**

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You can find more information on the DMC and the Altiris Server Management Suite at the following sites:

<http://www.dell.com/openmanage>

<http://www.delltechcenter.com/page/Dell+Management+Console>

<http://dell.symantec.com/dmc>

<http://dell.symantec.com/dmc-plugins>

<http://dell.symantec.com/dmc-quickstart>

<http://dell.symantec.com/dmc-tech>

<http://dell.symantec.com/dcm-tech>

<http://dell.symantec.com/delldeploy-tech>

<http://www.altiris.com/dellclientmanager>

## About Principled Technologies

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Principled Technologies, Inc.  
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We provide customized services that focus on our clients' individual requirements. Whether the technology involves hardware, software, Web sites, or services, we offer the experience, expertise, and tools to help you assess how it will fare against its competition, its performance, whether it's ready to go to market, and its quality and reliability.

Our founders, Mark L. Van Name and Bill Catchings, have worked together in technology assessment for over 20 years. As journalists, they published over a thousand articles on a wide array of technology subjects. They created and led the Ziff-Davis Benchmark Operation, which developed such industry-standard benchmarks as Ziff Davis Media's Winstone and WebBench. They founded and led eTesting Labs, and after the acquisition of that company by Lionbridge Technologies were the head and CTO of VeriTest.

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